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[1] This is a widely revised version of a study that has had a long gestation period. Some of the early revisions have been written while visiting the Institute for Industrial and Labor Relations, Princeton University in the spring of 2000, where Contini was given generous hospitality. We have benefited from comments received after presentations of this version at Princeton, Torino, Padova and Aarhus. In particular, we wish to thank O. Ashenfelter and H. Farber. This research has been carried out thanks to grants by MUIR (1999 and 2001) to a inter-university research project "Labor mobility and wages: measurement problems, analytical tools, policy evaluation", coordinated by U. Trivellato of the University of Padua. Very valuable research assistantship has been provided by Roberto Quaranta.

1. INTRODUCTION

This study aims at establishing how mobility affected individual wages in the five-year period 1986-91, characterized by a slow worsening of Italy's economic position, leading into the 1990-91 recession. In those years many firms went through heavy restructuring, and downsizing was a frequent event.

We investigate the relation between wage levels, wage growth and labour mobility on Italian dependent workers, whose careers are observable between 1986 and 1991. Our principal aim is to ascertain whether job changes have improved the position of movers vis-à-vis the stayers' over a five-year long observation window, and to what extent did job displacement inflict wage losses to downsized workers.

We use an employer-employee linked database developed from Italian Social Security (INPS) administrative sources, from which we build a closed panel of full-time male employees of all industries of the private sector, at work both in 1986 and 1991. Exclusions relate to women, in order to have better control over individual characteristics, and to the construction sector, in view of its seasonal characteristics which interfere in the study of mobility.

The choice of working with a closed panel rather than an open panel of dependent workers is dictated by the opportunity of finessing very substantial problems of unobserved heterogeneity: as will be explained in par.AB, attrition is considerable and all but a random event. Furthermore, our objective being an investigation on the comparative advantage of movers vs. stayers, not on impact –as is done in many studies on job switching[2] - but over a relatively long observation window, the relevant "movers" are those who are succeed in moving from one job to another, eventually going through unemployment spells, much less those who become long term unemployed or leave the labour market altogether.

For this reason we choose to work – for the time being - with only one observation per individual, while retaining, it goes without saying, the relevant information on the events occurred within the 1986-1991 observation window. Full open panel modelling and estimation will be taken up in the next future.

We move from a stylized fact about working conditions, tenure and pay at various firm-types. Ranking firms by size, the following stylized facts emerge clearly:
(i) large firms pay better wages than small ones;
(ii) mean tenure at large firms is higher than at small enterprises;

	Gross yearly earnings 1995 (million Lit.)		Mean duration of employment spells (years)
Firm size	white collars	blue collars	All
< 20	29.6	25.6	2.0
20-200	38.9	27.7	3.4
200-500	44.6	29.6	5.3
> 500	50.4	31.7	7.7

Source: B. Contini, C. Malpede, L. Pacelli, F. Rapiti (1996)

The former indication is in line with predictions from efficiency wage theory; the latter with two well known facts: (1) small firms are often short lived compared to

[2] See M. Burda and A.Mertens (2001), S. Nickell et al. (2002), H.S. Farber (1993).

the large ones; (2) job hierarchies are longer and more articulated in large businesses, where mobility often takes place along internal lines[3].

Given these premises, the following are the questions we intend to answer:

1 Are there sizeable differentials between stayers and movers ?
2 Does firm size affect wage growth for movers (across firms of different size) as much as it determines cross-sectional wage level differentials
3 Does age matter, i.e. is the impact of job changes and firm size on wage growth the same between young and old workers
4 Are there significant differences between what we identify as voluntary and involuntary job changes? [4]
5 Are frequent movers better off than one-time movers ?
6 Do unemployment spells negatively affect wage growth ?
7 Are there sizeable downsizing effects on wage growth ?

A quick look at the literature

A rich body of empirical studies on various aspects of mobility and wage dynamics has grown in the Nineties, as databases containing information on workers, jobs and firms have become available.
Hartog and Van Ophem (1994) study wage growth of certain groups of employees discriminating between mobile and non-mobile employees, and between voluntary and non-voluntary job changes; C. Flinn (1986) analyses the intertemporal structure of wages for young workers separately for movers and stayers. He presents evidence that unobserved worker-firm heterogeneity is an important component in the wage growth of young workers. H. Farber (1993 and 1997) looks into the cost of job losses after displacement, finding that job losses adversely affects workers' earnings in many ways. Employment probabilities are reduced and an increased probability of working part-time yields lower earnings both through shorter hours and lower wage rates. The decline in real weekly earnings between the pre displacement job and the post displacement job averages about 13% for all reemployed displaced workers and about 9% for workers displaced from full-time job who are reemployed on full time job. Burda and Mertens (2001) find that wages of displaced workers in Germany decline slightly upon reemployment. The lowest wage quartile (where displacement is concentrated) gains slightly, while losses for the upper three quartiles are comparable to the US evidence. Evidence on real wage losses consequent on unemployment is provided for the UK by S. Nickell et al. (2002): estimated hourly losses amount to 10-20% during the first year from rehiring after the first unemployment spell. Longer duration spells are associated to significantly greater losses. A somewhat different question is posed by P. Gautier et al. (2002): who gets crowded out during downturns in the Netherlands ? Their findings are that at each job level it is mainly the lower educated workers who leave during downturns.

[3] Cfr. B. Contini and R. Revelli (1997)
[4] As will be explained, we proxy voluntary and involuntary movements by the employment pattern of the firms where job changes originate, as we have no direct elements to identify quits or layoffs. Where a large decline in firm size takes place in the observation period, or where a close-out takes place, we presume that worker separations pre-empt a likely layoff in the near future, and therefore take them as involuntary movements.

2. DESCRIPTIVE STATISTICS ON STAYERS AND MOVERS

2.1. How many stayers and movers ?

Our analysis is based on individual data from the Administrative Social Security (INPS) archives. We use a panel of workers matched to their firm of affiliation of approximately 100,000 workers each year from 1985 to 1991. From this panel we select a sample of 30167 full time workers, employed both in 1986 and in 1991 in the manufacturing and service sectors, and aged 20-50 in 1986. We find two groups:

(i) 20526 stayers (68%), employed at the same firm at the beginning and at the end of the observation period (not necessarily uninterrupted spells)

(ii) 9641 movers (32%), who make one or more job-changes during the 1986-91 period. 64% of all movers go through only one job-switch, 36% undertake more than two[5].

Tab. 1 Stayers and movers by individual and firm characteristics (percentages)

		Movers	Stayers
ALL		32.0	68.0
Stayers and movers by age and skill level			
Age 20-30	Blue	45.3	54.7
	White	38.4	61.6
Age 30-40	Blue	28.5	71.5
	White	26.3	73.7
Age 40-50	Blue	24.7	75.3
	White	22.7	77.3
Stayers and movers by industry			
	Energy, gas, water	12.6	87.5
	Iron and steel, mining	32.6	67.4
	Metalworking and mechanical industries	35.0	65.0
	Food, textiles, paper	38.4	61.6
	Wholesale and retail trade	41.1	58.9
	Transport and communication	16.4	83.6
	Finance	15.6	84.4
Stayers and movers by firm size			
	0-20	44.3	55.7
	20-200	32.6	67.4
	>200	20.6	79.4

Moves are more frequent among young workers, and decrease with ageing of the working force. Moves are also more frequent among blue-collars than white-collars. Almost half of the employed blue-collars aged 20-30 experience at least one job change in the 1986-91 period. This is not unexpected: in those years young people were eligible to be hired under 2-year "training-and-work" contracts (CFL), not

[5] Mobility in this panel is not comparable to the separation and association rates estimated for the Italian economy at large (Contini et al., 1996): our current database consists of a closed panel of individuals employed as dependent workers both in 1986 and in 1991, as opposed to open panels which include all exits from and entry to employment. The mean annual separation rates observed from open panels from the same administrative source are in the order of 34% of dependent employment in the private sector. Not surprisingly, the overall separation rate is many times higher than the frequency of job changes observed in this closed panel.

subject to renewal. At the end of the contract period, either the contract was changed into a regular one, or a job-change was necessary.

A breakdown by industry indicates that movers are concentrated in the trade sector, and in food, textiles, and other traditional manufacturing. Few movers are found in the public utilities (energy, gas and water).

Not surprisingly, the frequency of job-to-job switches is inversely proportional to firm-size: 44% of workers employed at small firms in 1986 change jobs in the observation period; this frequency falls to 33% for workers employed at mid-size firms, and to 21% for workers of large firms. This is a reflection of the physiologically high turnover of small-size businesses, coupled with the fact that: (i) high turnover is often perceived as a threat to employment stability; (ii) many employees of small firms may therefore wish to move to larger establishments, inspite of the fact that working conditions may be less pleasant than in the firm of origin; (iii) pay increases with firm size. Last but not least, as often reported in the literature on Italy's industrial districts[6], small firms play an important role of training-on-the-job of young workers, and therefore job changes in the direction of larger firms is the epilogue of this process.

2.2 Recognizing the downsized workers

We deal with the issue by looking at the five-year trend of employment in the firms from which the job-changes originate, and classify them in five groups as follows:

1. Expansion, if between 1986 and 1991 the firm has increased its workforce;
2. Constant if no significant variation has happened in the firm employment;
3. Decline if in the 86-91 period the firm has reduced employment from 10 to 40%;
4. Strong decline if the decline is by more than 40% of the workforce on payroll;
5. Closeout if the firms has closed in the period.

For lack of more precise information, we classify as "downsized workers" all those who leave a firm that has either closed down, or experienced a drastic employment cut in 1986-91. There are good reasons to suppose that job changes following such separations are, as it were, forced by the events. Workers who fear the risk of being downsized in the near future, will, whenever possible, engage in early job-shopping in order to pre-empt a likely layoff. We expect these workers to take wage losses compared to other job changers.

Table 2 Movers and stayers by firm of origin

	Expanding	Constant	Declining	Strong decline	Closing	Total
Movers	24.7	9.6	13.1	15.9	36.7	100
Stayers	52.9	23.5	20.2	3.3	0	100

Over 50% of the observed movers are "downsized" according to our definition, i.e. they originate from firms that have drastically reduced their workforce or that have closed down altogether. On the other hand almost one fourth of the movers have left expanding firms. Not surprisingly, three fourth of the stayers belong to firms that have either expanded workforce or showed no sizeable change.

[6] For all, see

Table 3 Downsized workers by age

	Age 20 –30	Age 30 – 40	Age 40 – 50	Sample size
Movers	39.0	34.1	26.9	4751
Stayers	28.1	33.7	38.2	683

A slight majority of the downsized workers is in young age, while the stayers, i.e. those who get retained inspite of the employment cuts, are somewhat older.

Table 4 Downsized workers by skill group and percentiles in the relative wage ratios in 1986 and 1991

	Sample size	Mean	P25	P50 =median	P75
1986					
Blue collars					
Downsized	3904	0.965	0.836	0.944	1.063
All	20415	1.000	0.856	0.973	1.118
1991					
Downsized	3904	0.957	0.797	0.920	1.063
All	20415	1.000	0.829	0.956	1.129
1986					
White-collars					
Downsized	1530	0.962	0.760	0.900	1.099
All	9752	1.000	0.805	0.958	1.137
1991					
Downsized	1530	0.963	0.711	0.882	1.133
All	9752	1.000	0.761	0.932	1.156

We measure the relative pay level by the ratio (INEQ) between the individual wage at (t) - w(i,t) - and the average wage at (t) of individuals belonging to the same cell: age x industry, separately for blue and white collars. For both skill groups the relative pay level of the displaced workers is lower than that of the overall sample, after appropriately weighing in order to account for age differences. At all percentiles of the INEQ86 and INEQ91 ratios there is a sizeable difference against the workers who loose their post as a consequence of downsizing. The *ex-ante* differential (1986) is in line with the findings of P. Gautier et al. (2002) in Holland, and of Burda and Mertens (2001) in Germany.

2.3 Characteristics of job changes

Most of the job changes take place within sectors: only few workers (less than 5%) move from manufacturing to service industries, slightly more in the opposite direction.

Tab. 5 Frequency of job changes 1986-91 across different sector (percentages)

	1991		
1986	Manufacturing	Services	Total
Manufacturing	95.4	4.6	100.0
Services	7.9	92.1	100.0

Likewise, many job changes are observed across firms of equivalent size. Moves towards larger firms are more frequent than moves in the reverse direction. The pattern is clearly visible in manufacturing, less so in the service industries.

Tab. 6 Frequency of job changes 1986-91 across firms of different size (percentages)

Manufacturing			
	Small	medium	large
small (< 20)	56.2	33.7	10.1
medium (20- 500)	20.8	59.0	20.2
large (> 500)	3.0	22.8	74.2
Services			
	Small	medium	large
small (< 20)	69.2	23.8	7.1
medium (20- 500)	22.7	45.0	32.3
large (> 500)	5.1	37.6	57.3

Only 14% of movers move to firms located in a different province, and less than 5% change also macro regions (North-West, North-East, Centre, South, Islands).

Tab. 7 Frequency of movers that undertake geographical mobility

	N° in our panel	% of movers
Movers who change province between 1986-1991	1363	14.1
Movers who change macro area between 1986-1991	461	4.8

2.4 Promotions and contract transformations

We deal here with promotions that involve a status change (i.e. from manual to white-collar and from white-collar to manager), and contract transformations of two-year training-and-work subsidized youth contracts (CFL = contratti di formazione e lavoro), changed into permanent positions).

Our data provide information on contract changes: less than 6% of the workers included in the sample are involved in such changes between 1986 and 1991.

Tab. 8 Promotions between 1986 and 1991

	To WHITE-COLLAR	To MANAGER	
From MANUAL	1338	106	1444
From WHITE-COLLAR	-	221	221
	1338	327	1665

Promotions involving only skill upgrading across pay levels ("livelli di inquadramento") without any contract change may be detected only through the ex-post observation of unusually high pay raises. Most industry contracts stipulate eight pay grades for the manual worker class, with modest wage improvements in between, and up to ten for the white-collar's, with pay raises that are modest at the initial steps and become much more sizeable moving up the ladder. The impact of skill upgrading will be discussed in par.

Contract changes are relatively more frequent at young age for blue-collars who leave a manual job for a white-collar position. Later in life contract changes denote promotions, often on-the-job, from blue-collar to white-collar status. White-collars occasionally get promoted to a manager position (never at young age, more often in concomitance with a job-change).

Tab. 9 Frequency of occupational upgrading

	Age 20-30		Age 30-40		Age 40-50	
	Blue	White	Blue	White	Blue	White
Movers	12.97	1.12	7.82	5.48	6.60	4.75
Stayers	7.12	0.52	5.79	1.99	3.83	2.23

Almost all of the CFL - subsidized contracts for youth in existence in 1986 have been transformed by 1991: about half by the firm of origin and half by a new firm. The contract could be stipulated for 1 or 2 years, and was subject to only one renewal with the same firm. The clause did not apply, however, if the worker changed employer (only 35 cases in our sample).

Tab. 10 Training-and-work contracts (CFL) for young workers

In existence in 1986	688
Transformed into permanent positions by 1991 by the firm of origin (stayers)	298
Transformed into permanent positions by 1991 after a job change (movers)	355
Still CFL by 1991	35

2.5 Unemployment spells

Unemployment spells are recorded and show important differences between stayers and movers: the vast majority of the stayers never experiences unemployment (spell = 0); those who do (less than 5% of the total) are workers who get rehired by the firm of origin after a long spell out of work, sometimes longer than 3 years. For over 50% of the movers a 0-spell is recorded, meaning that these workers make a direct job-to-job switch. About 10% experience unemployment spells lasting less than 1 year; the same percentage is out of work for 12-24 months and 24-36 months. Over 15% of the movers find a job after spending more than 3 years in unemployment. Not unexpectedly, long duration unemployment scars future pay: this will be discussed in par. .

Tab. 11 Unemployment duration of movers and stayers

	M o v e r s		**S t a y e r s**	
Spell duration (months)	Frequency	%	Frequency	%
0	4986	51.71	19552	95.25
1-3	49	0.51	0	0
4-6	370	3.84	19	0.09
7-12	632	6.56	56	0.27

12-24	1103	11.44	324	1.58
24-36	979	10.15	337	1.64
> 36	1522	15.79	238	1.16
All	9641	100.00	20526	100.00

2.6 Wage levels and growth rates among movers and stayers

An important question relates to the causes of job-change: is it voluntary or is it forced by the events? Is it the final outcome of a process of job-search in which both workers and firms become involved, or is it – as it were - "imposed" on the workers by outside forces? The latter is not at all an unlikely event: in the course of many recent episodes of industrial restructuring, large employment reductions are negotiated between management and unions. The outcome of the bargaining table is often an agreement to help the re-deployment of a consistent fraction of the work-force to other firms, only at times belonging to the same financial group. In such a case, the most able workers may refuse re-deployment and do the job-shopping on their own, but many will take whatever is offered to them.
We do not, unfortunately, have this type of information in our data. Nor do we know when job-changes are associated with voluntary quits or when they are consequent to firings.[7] The latter may be "collective" if they originate from medium-large firms in the process of restructuring.
On the other hand, a job-changer who leaves a rapidly growing firm is more likely to be a voluntary job-seeker: a comparatively high 1991-pay would confirm this hunch. Both predictions appear to be borne out in the following Table 7.

Tables 12 contains means and standard deviations of monthly wages of movers and stayers in 1986 and 1991. Average wage growth 1986-91 is 60%. Italy's consumer price index increased by 32 p.p. between 1986 and 1991. Thus real wage growth in our sample is almost 30% in the 5-year observation period.

Table 12 Monthly wages in 1986 and 1991 and wage growth rate 86-91 for movers and stayers by different firm trends

		Movers			**Stayers**			*Mean advant. STAY vs. MOVE*
All		**N**	**Mean**	**Dev.std**	**N**	**Mean**	**Dev.std**	
	Wage 86	9641	1731.2	548.2	20526	1906.7	604.2	*+10.1*
	Wage 91	9641	2805.2	1138.3	20526	3042.3	1184.5	*+8.4*
	Wage growth rate	9641	1.6	0.4	20526	1.6	0.3	
By trend in the firm of origin								
Expansion	Wage 86	2227	1753.8	576.8	10858	1941.2	618.8	*+10.7*
	Wage 91	2227	2937.7	1261.3	10858	3146.7	1218.5	*+7.1*
	Wage growth rate	2227	1.68	0.42	10858	1.62	0.29	
Constant	Wage 86	870	1689.6	502.0	4831	1902.7	611.1	*+12.6*
	Wage 91	870	2799.2	1131.6	4831	3010.5	1202.3	*+7.5*

[7] The distinction between quits and layoffs is always very difficult. Neat in principle, often useless in practice: individual firings are seldom revealed even in the course of in-depth interviews, as they are perceived to carry a stigma. Only collective layoffs are easily recognizable, as they may be followed by public measures aimed at easing the transition. Unfortunately, this is seldom acknowledged in much of the literature, and the consequent error-in-variables bias neglected.

	Wage growth rate	870	1.66	0.42	4831	1.57	0.28	
Decline	Wage 86	1183	1713.4	521.0	4142	1837.2	533.1	*+10.7*
	Wage 91	1183	2780.6	1107.8	4142	2846.8	1022.3	*+2.4*
	Wage growth rate	1183	1.64	0.41	4142	1.55	0.28	
Strong decline	Wage 86	1439	1739.1	582.7	681	1811.4	675.7	*+4.1*
	Wage 91	1439	2768.1	1061.2	681	2802.5	1227.9	*+1.2*
	Wage growth rate	1439	1.61	0.36	681	1.55	0.33	
Closeout	Wage 86	3312	1742.5	541.4				
	Wage 91	3312	2775.1	1121.8				
	Wage growth rate	3312	1.60	0.37				

Several patterns are clearly shown:

(i) the mean initial wage (1986) of the stayers is more than 10 p.p. higher than that of the movers (before moving) in all groups; the mean final wage (1991) of the stayers is 8.4 p.p. higher than the movers';

(ii) the mean 1991 wage of the stayers is between 7 – 7.5 p.p. higher than that of the movers in the group of expanding or constant-employment firms. It is marginally higher (between 1.2 and 2.4 p.p.) among the declining firms;

(iii) the wage growth of the movers is slightly higher than the stayers' in all groups of firms;

(iv) the standard deviation of the movers' growth rate is somewhat higher than the stayers' (0.4 vs. 0.3);

(v) for both movers and stayers employed at expanding firms the mean wage 1986 and 1991 is notably higher than in all other groups of firms.

Descriptive statistics confirm shared knowledge: workers with lower initial wages find encouragement in job searching and subsequent change (the initial wage of those who will move is lower than that of those who will stay); the wage growth of movers is higher than that of the stayers (especially at young age and for white-collars: see table 8), but variability is also higher. On average, however, the mean wage of the stayers at the end of the observation period, is still substantially above that of the movers. In addition, table 8 suggests that the movers' wage growth is higher than the stayers' among the white collars, the differential decreasing with age. For the blue collars instead, characterized by flatter earning profiles, this occurs only among young workers (aged 20-30)

Table 13 Wage growth by occupational status and age

AGE	OCCUPATION	STAYER	MOVERS
20-30	BLUE	1.56	1.6
	WHITE	1.77	1.9
30-40	BLUE	1.53	1.52
	WHITE	1.71	1.78
40-50	BLUE	1.51	1.51
	WHITE	1.64	1.67

3 MODEL SPECIFICATION

3.1 Open vs, closed panel estimation

A thorough exploration of the database reveals that attrition is considerable and all but a random event: about one third of the workers present in 1986 drop out of the panel by 1991, and, while there is evidence (external from our database) that the vast majority of male dropouts end up in states with negative economic connotation (unemployment, shadow economy, rarely out of the labour force unless young), few will undoubtedly experience upwards mobility by moving, for instance, into successful self-employment[8]. Such transitions, for which no information is available in the panel, would introduce a vast amount of unobserved heterogeneity in the analysis, should we decide to opt for open panel econometrics. [9] Furthermore the principal aim of the paper is to ascertain whether movers are better off than stayers over a relatively long observation period, and not on impact, as is done in many studies on job switching. The relevant "movers" for this type of analysis are those who switch jobs across firms, eventually going through unemployment spells, much less those who become long term unemployed or leave the labour market altogether.

[8] The frequency of transitions into self-employment following a separation from dependent work has been estimated around 9-10% of all separations. See B. Contini et al. (1996).

[9] The problems of heterogeneity arising in the open panel may be assessed by the probability of attrition (OUT = leaving the panel, and not having re-entered within a given time), conditional to the initial position in the earnings distribution.

Table 14 Probability of attrition (Q, OUT) from each quintile of the wage distribution, by age, observed in the 1986-1991 window

Quintile 1986	<25	25-34	35-49	50-64
Q1	43	55	56	81
Q2	31	40	39	68
Q3	24	32	31	62
Q4	19	24	26	61
Q5	15	17	19	58

Cont'd

3.2 Estimation

Estimation is performed by OLS on two separate equations (one for the blue-collars, one for the white-collars), the dependent variable being w(i;jk), the wage change (1986-91) for the i-th individual who has moved from firm-type j (in 1986) to firm-type k (in 1991). If he/she is a stayer, then j = k. Firm-types refer to size and activity sector.

$$W(i;jk) = \left(\frac{w_{91}(i;k)}{w_{86}(i;j)} \right) - 1 \qquad [I]$$

Table 15 Probability of attrition P(Q, OUT) from Q1 and Q4 by age, observed at windows of different length

	1 year	5 years	10 years
Age 15-24			
P(1, OUT)	23.52	39.26	49.74
P (4,OUT)	22.20	30.47	38.76
Age 25-34			
P(1, OUT)	33.15	53.20	57.64
P (4,OUT)	10.45	20.75	24.46
Age 35-49			
P(1, OUT)	29.68	52.46	63.60
P (4,OUT)	7.03	19.82	39.31
Age 50-64			
P(1, OUT)	39.88	76.08	94.57
P (4,OUT)	20.75	66.62	94.09

Table 16 Probability of attrition P (Q, OUT) from Q1 and Q4 by sex, observed at windows of different length

MALE	1 YEAR	5 YEARS	10 YEARS
P(1, OUT)	25.09	47.38	60.14
P (4,OUT)	13.74	28.71	40.53
FEMALE			
P(1, OUT)	28.59	44.21	53.75
P (4,OUT)	10.86	29.27	45.76

At all ages, the higher the earnings in 1986, the lower the probability of attrition (i.e. leaving dependent work some time before 1991). Surprisingly similar results are reported for the U.K. by Gosling (1997). The vast majority of movements out of dependent work (with the obvious exception of the retirees) appears to have a negative connotation, whether or not the state of destination is outright unemployment

Analogous implications are suggested by the probability of attrition at (t+T) conditional on the length of one's employment spell at (t): for male workers, less than 45 yrs. of age, it was estimated as follows:

Prob [OUT (94) / (job length < 3 months in 1991)] = 0.50
Prob [OUT (94) / (job length between 6 and 11 months in 1991)] = 0.15

The vast majority of those who have exited the panel by 1994 are in bad economic conditions compared to those who are still in the panel.

w (i;jk) may be expressed as a linear function of X exogenous regressors and residuals:

[1] $w(i;jk) = B^I X^I + B^F X^F + B^Z X^Z + u$

where the superscripts I, F, Z denote regressors associated respectively with individual characteristics, firm characteristics, and general macro-indicators.

As already explained, the sample includes one observation for each individual in the panel. Thus, while there is no room for panel estimation with unobservable, time-invariant, individual effects, we cannot simply do away with initial conditions that could influence the wage growth in the five-year period 1986-91. Our choice for a proxy of initial conditions is the i-th individual's relative wage in 1986, i.e. the ratio between w(i,86) and the average wage 1986 of all individuals belonging to the same cell (age x industry x skill level). To the extent that one's relative initial wage reflects also individual characteristics, this approach ought to yield satisfactory results[10]. To these results, and to the consequences of possible endogeneity of our proxy, we will return after the presentation of the main estimates.

In principle X^I and X^F reflect individual and firm characteristics. Are our data adequate to yield a satisfactory representation of X^I and X^F ?

(X^I): education is not observable. This is a problem, but not a major one safe for young workers.[11] We find indirect confirmation of this hunch in par.ZX;
(X^F): our firm data are rich in some respects (industrial 2-digit classification, geography, employment and earnings history by skill level and size, firm age, entry and exit flags), and weak in others. In particular, we have no data on performance, market power, financial structure.

X^I regressors (14)

Activated for movers and stayers

INEQ86	initial (1986) relative wage (proxy for initial conditions)
AGE	Age
UN-MOV	unemployment spell between jobs (in months), movers
UN-STA	unemployment spell between jobs (in months), stayers
MOV-2 (*)	2 job changes in the observation period
MOV-3 (*)	3 job changes in the observation period
MOV-4 (*)	more than 3 job changes in the observation period
DAV (*)	occupational upgrading, involving a contract change (from blue to white collars and from white to manager occupation)
DZO (*)	geographical mobility
DZO*DOWN (*)	geographical mobility for downsized workers
SET01 (*)	intersectoral mobility (from manufacturing to services)
SET10 (*)	Intersectoral mobility (from services to manufacturing)
SET01*DOWN (*)	intersectoral mobility (from manufacturing to services) for downsized workers
SET10*DOWN (*)	intersectoral mobility (from services to manufacturing) for downsized workers

[10] Another approach to the problem is that of Stewart, Swaffield (1998). To solve the problem of sample selection bias due to correlation across time between the unobservable, they use extra variables as instruments for the selection probability into the initial state.

[11] Hartog and Van Ophem (1994) find that education has little or no effect on wage growth in relation to mobility. Bonjour and Pacelli (1998) tested on Swiss data the size and the direction of bias when age is used as a proxy for education and experience. They find that using age as a proxy for education leads to a small bias for men and full time working women.

DOWN is a 0-1 dummy activated if the firm of origin has reduced employment by more than 40% or has closed in the 86-91 period (firms belonging to groups 4 or 5 as described in § 2.2)

X^F regressors (49)

Activated for movers and stayers (12) :

R1 --> R8 (*)	industrial sector
SMALL - LARGE (*)	firm size 1986
NOV-NES-SUD-ISO (*)	4 geographical dummies (firm location)

Activated only for stayers (1):

DOWN-STA (*)	Firm has had a strong decline in employment in the period (firm in group 4)

Activated only for movers (36):

DM1 --> DM9 (*)	job-change across firm size (manufacturing)
DS1 --> DS9 (*)	job-change across firm size (services)
DM1 --> DM9 * DOWN	job-change across firm size (manufacturing) for downsized workers
DS1 --> DS9 * DOWN	job-change across firm size (services) for downsized workers

For each branch 9 dummy variables denote job-changes involving movements across firms classified by size (DM1 - DM9 for manufacturing; DS1- DS9 for services). We distinguish small firms (< 20 employees), medium firms (20 -200 employees) and large firms (> 200 employees). Thus we have 3 x 3= 9 "types" of job-change. The associated variables are activated as follows:

$$D(i; jk) = \begin{cases} 1 & \text{i-th individual moves from firm-type j to firm-type k} \\ & (j, k = 1,2,3) \\ 0 & \text{otherwise} \end{cases}$$

If the i-th individual is a "stayer" none of the D dummies are activated. In order to catch the “downsizing” effect, all the D variables above are interacted with a dummy (DOWN) activated if the firm of origin has either closed down or drastically reduced its work-force in the 1986-91 period.

Additional controls are provided by MOV-2 through MOV-4, which we place among the X(I) regressors: frequent job changes may reflect a positive attitude towards job search, and have a positive impact on wages. There could be, however, decreasing returns beyond a certain amount of job-switching, which our specification allows to catch.

Spells of unemployment (UN-MOV; UN-STA) may be observed for movers between successive jobs, and for stayers if their tenure is interrupted. The longer the spell, the higher the reduction of one's earning potential as a consequence of loss of visibility in the job market and/or loss of working ability.

4 THE RESULTS

We report here only the main results of OLS estimation. The full set of results are

available upon request. Estimation is performed separately for each skill-group, the dependent variable being individual wage growth over the horizon 1986.91. Age and age square are introduced as additional controls and turn out significant, respectively negative and very slightly positive, as expected from the hump-shaped profile of wage levels vs. age. We have also estimated the model by three age groups, but do not report them here as differences are very slight. The only exception relates to the coefficients that catch the impact of job change across firms of different size: these are somewhat more sensitive to age, but inter-age variability is not indicative of any clear pattern.

4.1 Movers vs. stayers: promotions and contract changes

Not unexpectedly, promotions that involve a contract change (i.e. from manual to white-collar and from white-collar to manager), and contract transformations (CFL - two-year training-and-work subsidized youth contracts changed into permanent positions) have a sizeable impact on wage growth.

Wage gain 1986-91 (in percentage points)	Stayers	Movers
Contract transformation and promotions (contract change):		
CFL transformed into permanent (manual)	0	0
CFL transformed into permanent (white-collar)	0	13 +
CFL transformed into permanent (with promotion from manual to white-collar)	28	28 +
Permanent job: promotions from manual to white-collar	18	18 +
Permanent job: promotions from white-collar to manager	53	53 +

(+) plus eventual extra gain associated to change of industry, geographical area and firm size (details in par.).

A CFL – transformation for manual workers does not carry any monetary advantage to either stayers or movers, unless it is accompanied by skill upgrading. For white collars, instead, a CFL-transformation yields a 13 p.p. gain only when the contract is transformed after a rehire by another firm. Promotions involving a contract change yield the same gain to stayers and movers: 18 p.p. from manual to white collar, 53 p.p. from white collar to manager position. Not unexpectedly, the latter's reward is much higher than the former. The movers' advantage may be enhanced by extra gains associated with a change of industry, geographical area and firm size.

Table 17 Movers: wage gains due to job switches involving industry and geographical change

	BLUE-COLLARS	WHITE-COLLARS
From MANUFACTURING to SERVICES (no geographical change)	0.06 *	0.17 **
from SERVICES to MANUFACTURING (no geographical change)	0.04 *	0.09 *
GEOGRAPHICAL CHANGE (only)	0	0.03

The data reveal an extra advantage for movers who change activity sector, slightly higher if the switch is from manufacturing to the service industries compared to the opposite switch; higher for the white-collars than the blue-collar workers.
Geographical change (across macro-regions: North, Centre, South and Islands) carries a very modest wage gain only for the white-collars.

4.2 Movers: job switches across firms of different size

Our prior is that job switches across firms of different size may have an important impact of their own on wage growth. The relevant information is compressed in the following (3 x 3) matrices of OLS estimated coefficients associated to job-switches across firms classified into three size classes. The associated dummies are activated only for movers, the stayers being the benchmark:

S "small" firms (less than 20 employees)
M "medium" firms (20 – 200 employees)
L "large" firms (> 200 employees)

Cells show a zero when the relative coefficient is non significantly different from zero. Each cell shows, in parenthesis, also the impact of the switch net of the "downsize effect" associated to workers leaving a firm belonging to group 4 or 5 (drastic employment reduction or firm closure). When missing, the relative DOWN variable is non significantly different from zero. Comments on this are delayed to the next paragraph.
Moving across the columns of each 3x3 table (from left to right) denotes the effect of a job switch ending in firms of increasing dimension. Moving across the rows (from high to low) catches a job switch originating from firms of increasing dimension. Thus in the North-East corner above the diagonal we have job-switches from small to large; in the South-West corner from large to small.

The four tables show the coefficients (all multiplied by 100):
A.1 = blue collars / manufacturing; A.2= white collars / manufacturing
A.3 = blue collars / service industries; A.4 = white collars / service industries

Blue collars: 20415 obs.

Tab. A.1 **MANUFACTURING**

From: \ To:	S	M	L
S	**0**	**12++**	**21++**
M	**- 6 + (- 10)**	**4+**	**6+**
L	**- 22+**	**- 5 (- 12)**	**- 3**

Tab. A.2 **SERVICES**

- 3 +	**10 +**	**31 ++**
- 7	**0**	**0**
- 34 +	**- 33 +**	**10**

White collars: 9752 obs.

Tab. A.3 **MANUFACTURING**

- 12 (8)	**12 +**	**36 + (9)**
0	**9 +**	**13 + (0)**
25 +	**18 ++ (3)**	**9 + (- 1)**

Tab. A.4 **SERVICES**

0	**15 +**	**58 ++ (31)**
0 (- 19)	**13 +**	**16 +**
29 (- 60)	**7**	**11**

0 = coefficient non significant; no asterisk = 90% significance; (+) = 95% significance; (++) 99% > significance

1. The pattern is very clear for the blue-collars (tab. A.1 and A.2): job switches from small to large firms (NE corner) have positive coefficients; job-switches in the reverse direction (SW corner) have negative coefficients. The greater the difference in size between the firm of origin and that of destination, the larger (in absolute value) the wage change coefficient. This appears to be a consequence of the strong correlation between earnings and firm size, in conjunction with the modest lifetime upgrading of wage profiles of blue-collar workers, whether in the manufacturing or the service industries.

The pattern is very different among the white-collars (A.3 and A:4): switches across different size firms are always positively signed (with one exception, the S-S switches in manufacturing, in A.3), indicating that job changes of the white-collars are often associated with promotions to a higher within-contract pay grade.

Notice, however, as will be discussed hereafter, that the wage losses associated to downsizing effects, is much higher for the white-collars than for manual workers.

The magnitude of wage gains (losses) is often remarkable, especially for the white-collars: 36 p.p. when the switch takes place between small (S) and large (L) firms in manufacturing (A.3); 58 p.p. when the same occurs in the service industries (A.4). Somewhat lower, but still substantial are the gains to manual workers for analogous

moves: 21 and 31 p.p. respectively in manufacturing and service industries. Also job switches from L-firms to S-firms turn out profitable for the white-collars: 25 and 29 p.p. respectively in manufacturing and service industries (A.3 and A.4). On the other hand, similar job changes for manual workers carry very substantial wage losses: 22 and 34 p.p. respectively in manufacturing and services (A.1 and A.2).
A noticeable wage loss of 33 p.p. is found for manual workers who move from L-firms to M-firms of the service sector.
Job switches across firms of similar size (along the diagonal) yield small wage gains among blue-collars; somewhat larger among the white-collars.

2. We now turn to the impact of downsizing on job switches. In Italy the 1986-91 period was characterised by a slow worsening of general economic prospects, which led into the 1990-91 recession. Many firms, especially the large ones, went through restructuring and reduced activity, often leading to important downsizing.
In our exploration a dummy variable DOWN is activated for all the downsized workers (i.e. those whose separation takes place when the firms either close down or drastically reduce their work-force in the 1986-91 observation window). This is aimed at catching an overall, presumably negative impact on wage growth as a consequence of downsizing events for both stayers and movers. In addition, for the movers the DOWN dummy is interacted with each of the job-change D(i;k,j) variables, while DOWN-STAY is associated only to stayers.
The estimated coefficients denote the wage loss that people suffer, whether moving or staying, attributable to the fact that they were on payroll at downsizing firms. As already explained our hypothesis is that, when DOWN is activated, workers are - as it were - forced by the events to either move or stay. The estimates provide some support for this hypothesis, but only for workers who undertake job changes. Somewhat surprisingly, we find no generalized impact of downsizing on wage growth, nor do the estimates indicate any specific impact on the stayers' earnings profile. For the movers, the coefficient associated to job change, net of the "downsizing effect", is shown in parenthesis in tab. A.1- A.4. We find support for the hypothesis that job switches associated with downsizing are seldom voluntary quits, but rather decisions that pre-empt a layoff perceived as likely to occur within a short time. Noticeably, the wage losses suffered as a consequence of downsizing are greater and more frequent for the white-collars than for the blue-collars.
Take, for instance, the A.4 matrix (white-collars; service industries): a switch from S to L yields a gain of 58 p.p., but this gets reduced to 31 p.p. if the worker has left a S-firm that has downsized (or closed). A switch from an M-firm to a S-firm yields no wage gain; if the M-firm of origin has downsized, the workers involved in the change suffer a net loss of 19 p.p. Notice the huge loss (- 60 p.p.) inflicted to white-collars who move following the downsizing of a large L – firm and ending up in a small S-firm. The same move, were it not induced by a downsizing event, would yield a 29 p.p. wage gain.[12]

4.3 Unemployment spells

[12] Results for Germany are reported in M.C. Burda and A. Mertens (2001): they find that wages of displaced workers decline slightly upon reemployment. The lowest earnings quartile (where displacement is concentrated) gains slightly (+2%), while wage growth losses for the upper three quartiles are comparable to US evidence (- 17%) reported by H. Farber (1997).

One's absence from the panel between two employment spells indicates - with high probability - periods spent in unemployment [13]. The length of such spells has a slight, but nonetheless significant, impact on total wage growth, independent of age. The reduction of wage growth at the end of the observation period is only 0.1% for each month spent in unemployment for the blue-collars, movers and stayers alike. One possible explanation for such a slight impact is that skilled manual workers are always in high demand, regardless of the business cycle: many have been forced into early retirement by restructuring businesses, but few move into unemployment. For the unskilled, instead, there is never any real skill obsolescence due to unemployment. A six-month unemployment spell between two successive jobs would induce a reduction of wage growth by 0.6 p.p. Not surprisingly, the negative impact of unemployment spells is higher for the white-collar movers, about - 0.4 p.p. for each month in unemployment, adding up to - 2.4 p.p. for a six-month unemployment spell, and – 4.8 p.p. for a one-year spell. No impact, however, emerges for the white-collars who go through unemployment but get rehired in the same firm at the end of the spell. [14]

These results confirm the hypothesis that the careers of those who remain blue collars all their life -basically low skilled manual workers- are flat and unaffected by spells of unemployment, provided they are back on the job by the end of the observation period. On the other hand, and in line with explanations in term of specific human capital, a career interrupted by periods spent in unemployment does have somewhat of an impact on the earning profiles of the white collars.

Table 18 The impact of intervening unemployment spells on wage growth (unemployment duration in months)

	1 month		6 months	
	Movers	**Stayers**	**Movers**	**Stayers**
BLUE-COLLARS	- 0.001	- 0.001	- 0.006	- 0.006
WHITE-COLLARS	- 0.004	0	- 0.024	0

4.4 Frequency of job changes

Frequent job switching could be a signal of intense search behaviour, and therefore associated with higher wage growth. On the other hand, too many job-changes could reflect the precariousness of certain positions, characterised by a great deal of uncertainty.

[13] Unemployment cannot be recorded with certainty in our data-base: self-employment, out-of-the-labor force including retirement (for those in eligible age), moves in the public sector (following a tenured hire), are all compatible with attrition. The observed frequency of moves into self-employment is a little over 7% of all separations; that of entering the irregular economy, obviously unknown, may be high expecially in the South, but mainly for those who have never been regularly employed before (which is not the case with a closed panel like ours). Notice a similar observation in M.C. Burda and A. Mertens (2001): in Germany only 80% of all displaced workers are found in socially insured employment 4 years after displacement.

[14] Our estimates are lower than those reported by S. Nickell, P. Jones, G. Quintini (2002) for the U.K. Estimated (hourly) earning losses amount to 10-20% during the first year from rehiring after the first unemployment spell. As in Italy, losses tend to be higher, the higher the skill level of those involved.

Estimation provides interesting insight also within age groups: among the blue-collars there is no visible impact at any age. Among the white-collars, instead, a certain amount of job-switching has positive effect on wage growth, but only among people in age-groups 1 and 2 (i.e. less than 40 yrs. old): two moves do better than one; three do better than two; but four (or more) flattens the wage profile back to the level of the stayers. Above 40 years of age the positive impact is modest with two moves (6 p.p.) and disappears altogther with more frequent job changes.

Table 19 Frequency of job changes: impact on wage growth

BLUE-COLLARS	2 MOVES	3 MOVES	4 > MOVES
age 20 – 30	0	0	0
age 30 – 40	0	0	0
age 40 – 50	0	0	0
ALL AGES	0	0	0
WHITE-COLLARS			
age 20 – 30	0.08 *	0.16 *	0
age 30 – 40	0.11*	0.12	0
age 40 – 50	0.06	0	0
ALL AGES	0.09 *	0.14 *	0

4.5 Initial conditions

Wage growth in the period 1986-91 may be influenced by initial conditions: unobservable, individual effects like intellectual endowment, entrepreneurial attitudes, risk propensity, and the like. A reasonable proxy is the i-th individual's relative wage in 1986 (INEQ86), i.e. the ratio between w(i,86) and the average wage 1986 of individuals belonging to the same cell (age x industry x skill level). In principle, one's relative initial wage ought to reflect the relevant individual characteristics.[15]

There could be a problem of endogeneity of this proxy: 1986 seldom coincides with the beginning of one's working career (safe for very few young workers). Thus, endowed individuals may have a higher initial relative wage, and INEQ86 may be correlated with the residuals. Estimation via instrumental variables could be an appropriate strategy.
An alternative strategy, which we follow here, consists of estimating two versions of the wage growth equation: one including INEQ86 among the regressors, the other excluding it. Consider the following outcome: (1) the coefficient estimates are very similar in the two versions ; (2) the overall fitness improves only marginally when INEQ86 is included among the regressors; (3) the residuals are nearly identical. If (1), (2) and (3) are verified together, the implication is that initial conditions do not matter, and that simultaneity bias is not much of a problem here.

[15] Farber and Gibbons (1991), among others, find a strong correlation through time between wages and proxies of ability.

The following table displays the outcome of this exercise: we report here also the equations estimated separately for each age group, as initial conditions – not surprisingly - appear to be more relevant at young age than later. Recall that a negative coefficient for INEQ86 is expected by construction as w(i,86) is the denominator of the dependent variable:

Table 20 OLS regressions of wage growth with proxy for initial conditions (INEQ86)

	Mean	#	Coeff. INEQ	Std. Err.	$R^{2\ with}$ INEQ	$R^{2\ without}$ INEQ
BLUE C. age 20-30	1.58	7533	-0.659	0.018	0.227	.068
WHITE C. age 20-30	1.82	2785	-0.236	0.032	0.144	.102
BLUE C. age 30-40	1.53	7000	-0.355	0.016	0.132	.053
WHITE C. age 30-40	1.73	4018	-0.042	0.02	0.142	.086
BLUE C. age 40-50	1.51	5882	-0.323	0.016	0.111	.039
WHITE C. age 40-50	1.65	2949	-0.075	0.019	0.114	.047
BLUE C. all ages		20415	-0.426	0.009	0.157	0.069
WHITE C. all ages		9752	-0.086	0.012	0.144	0.088

Table 21 Correlation between residuals of OLS regressions estimated with and without proxy for initial conditions (INEQ86)

	Correlation coefficient
AGE 1 - BLUE C.	0.920
AGE 2 - BLUE C.	0.961
AGE 3 - BLUE C.	0.970
ALL AGES – BLUE C.	0.959
AGE 1 - WHITE C.	0.991
AGE 2 - WHITE C.	0.999
AGE 3- WHITE C.	0.999
ALL AGES – WHITE C.	0.995

- the INEQ86 coefficient is significant in all the estimated equations, much larger (in absolute value) in the blue-collars' equations than in the white-collars'. The wage growth of white-collar workers is weakly conditioned by initial pay, while that of the blue-collars is strongly conditioned.[16]

[16] A different, legitimate, interpretation is that INEQ86 fails to catch the "right" individual characteristics of people initially hired in white-collar positions;

- there are interesting differences across age groups: mong young workers (20-30, age-group 1) the INEQ86 coefficient is over twice as large as among older workers, for both white and blue-collars;
- the coefficient estimates are almost identical in the two versions of the white-collars' equations. Among the blue-collars some differences are found in the coefficients of industry dummies and firm-size. They are, instead, very slight for the dummies that catch the effect of inter-firm mobility;
- the correlation of residuals with and without INEQ86 are very high in all estimated equations: the order of magnitude is 0.92-0.97 in the blue-collars' equations, and 0.99 and over in the white-collars'.

All of the above suggest that initial conditions have a negligible impact on the wage profiles of the white-collars. They do, instead, have a modest impact on the blue-collars' profiles. In either case, the influence of initial conditions is slightly higher at young age[17].

If initial conditions reflect individual endowments (including educational attainment), then one might expect them to show up especially among white-collars, whose careers have more prospects and variability than those of people confined to manual jobs most of their life. This does not appear to be the case in Italy, for reasons related to the following institutional features: (1) the jobs that we observe are all "regular" working positions, for which social security contributions are paid in full by the employers; (2) the vast majority, if not all, of these contracts are subject to collective bargaining agreements. The main implication being – for example - that a university graduate in chemical engineering with high honours will be hired at the same conditions as an individual who has barely made it through college in whatever discipline. Their careers will obviously begin to diverge at some point, but a five-year horizon is probably not long enough to comprise this point.[18] Our story does not imply that the initial employment probabilities will be the same for the two characters in Italy as elsewhere, a chemical engineer has better chances than any college graduate. But our study is on transitions of people already in employment, not on transitions from school to work.[19]
On the contrary, a young man with a recognized vocational training diploma will be hired as a qualified blue-collar at a higher pay grade than an unskilled individual. Thus, initial conditions do matter for him, and his 1986- relative pay indeed reflects them. This is in line with what is known about the career profiles of manual workers in Italy, highly predetermined by collective bargaining agreements.[20]

4.6 Concluding remarks

[17] We are unable, for the time being, to detect the influence of initial conditions on those who achieve a career advancement (from a blue-collar to a white-collar position) in the five-year period under observation.
[18] In the near future we shall be able to replicate estimation on a ten-year observation period (1986-96), where it is reasonable to expect significant improvements over the results already at hand.
[19] This is not surprising: in Italy economic returns to education are usually found lower than in many countries of the industrialized world (Brunello and Miniaci (1999) report estimates between 4.8 and 5.6%): one explanation may, in fact, be provided by the nature of collective bargaining institutions.

[20] B. Contini (ed.), Labor mobility and wage dynamics in Italy, Rosenberg-Sellier (2002).

This study aims at establishing how mobility and job displacement affected individual wage growth in the five-year period 1986-91. Here is a summary of our main findings:

(i) the mean initial wage (1986) of the stayers is more than 10 p.p. higher than that of the movers (before moving) in all groups; the mean final wage (1991) of the stayers is 8.4 p.p. higher than the movers';
(ii) the mean 1991 wage of the stayers is between 7 – 7.5 p.p. higher than that of the movers in the group of expanding or constant-employment firms. It is marginally higher (between 1.2 and 2.4 p.p.) among the declining firms;
(iii) the wage growth of the movers is slightly higher than the stayers' in all groups of firms; movers do better than stayers at young age (20-30), but the difference tends to vanish, especially for manual workers as age progresses;
(iv) mover-stayer differentials are larger among white-collars than blue-collars, in line with the higher variance of earnings of the former;
(v) wage growth attributable to inter-firm mobility is driven by the wage - firm size positive correlation only for blue-collar workers: job-switches from small to large firms yield substantial pay improvements relative to stayers; job switches from large to small size often end up in wage cuts. For the white-collars, instead, job changes in either direction tend to improve one's position relative to stayers;
(vi) workers hit by downsizing events earn lower wages than the rest of their peers, both ante-displacement (1986) and post-displacement (1991). This supports the hypothesis that downsizing hits mainly the least skilled among both manual workers and white-collars. On the other hand, as indicated below (vii and viii), we find no evidence of a generalized downsizing effect on wage growth;
(vii) the impact of downsizing on wage growth is localized. Somewhat surprisingly, we find no across-the-board impact. In particular, workers who are retained at firms that go through restructuring do not incur in significant wage losses;
(viii) wage losses after displacement hit the white-collars, but no clear pattern is detectable: some job changes inflict very substantial wage losses (up to 89 p.p. for moves from large to small firms of the service industries), some do not. Manual workers are less damaged from downsizing than the white-collars;
(ix) prolonged unemployment spells have a modest negative impact on the wage growth of white-collar employees (up to 2.5 p.p. for a six-month spell), very slight on the blue-collars'. We find no impact on workers who get rehired by the same firm of origin;
(x) frequent job-switching has a positive effect on the wage growth of the young and adult white-collars. If job changes become too frequent, however, its positive impact vanishes. No impact is found, instead, on the wage growth of manual workers;
(xi) initial conditions have limited influence on the wage profile of blue-collar employees; none on the white-collars'.

4.7 Future developments

This study suggests many areas for improvements. The main ones are:
- estimation over a longer observation window. The panel has been updated, in the meantime, through 1999;
- open panel estimation, and appropriate handling of unobserved heterogeneity;
- modelling job moves as endogenous choices.

Hopefully, we will soon be in a position to deal with some of these options.

5 REFERENCES

Bonjour D., L.Pacelli (1998) "Wage Formation and the Gender Wage Gap: Do Institutions Matter? Italy and Switzerland Compared". *U.C.L. Discussion Paper* no. 12/98

Brunello, G., Miniaci, *Labour Economics* (1999)

Burda, M.C., Mertens A., Estimating wage losses of displaced workers in Germany", *Labour Economics*, (2001)

Contini B., L. Pacelli, C. Villosio (1999) "Short Employment Spells in Italy, Germany and Great Britain: Testing the "Port-of Entry" Hypothesis" *CEP Discussion Paper* N. 426, June 1999

Contini B., R. Revelli (1997) "Gross flows vs. net flows in the labor market: what is there to be learned", in *Labour Economics*, no. 4

Contini B:, C. Malpede, L. Pacelli, F. Rapiti (1996) "La mobilità' del lavoro in Italia" in G. Galli ed. "La mobilita' della società' italiana", SIPI, Roma

Contini, B. and Villosio, C. (1998), 'Analysis of Wage Flexibility and Mobility', Report for the EC, DG V.

Farber, H. S. (1993) "The incidence and cost of job loss: 1982-1991" *Brooking papers on economic activity: Microeconomics* no. 1 73-119

Farber, H. S. (1997) "The changing face of job loss in the United States: 1981-1995" *Brooking papers on economic activity: Microeconomics* 55-128

Flinn C. J. (1986), "Wages and Job Mobility of Young Workers" *Journal of Political Economy*, vol. 94, no. 3, 1986

Gautier, P.A., van den Berg G., van Ours, J., Ridder, G., „Worker turnover at the firm level and crowding out of lower educated workers", *European Economic Review*, vol. 46, (2002)

Gibbons, R. and Lawrence F., K. (1991) "Layoffs and Lemons" *Journal of Labour Economics* 9 351-80

Hartog J., Van Ophem H. (1994) "On-the job search, mobility and wages in the Netherlands: what do we know?", mimeo

Jacobson, L., LaLonde, R., Sullivan, D. 1993 "Earnings Losses of Displaced Workers" *The American Economic Review*.

Nickell, S, Jones, P., Quintini, G. "A picture of job insecurity facing British Men", *Economic Journal*, vol. 112, n. 476 (2002).

Podgursky, M. and Swaim, P. (1987) "Job displacement Earnings Loss: Evidence from the Displaced Worker Survey" *Industrial and Labour Relations Review* 41 17-29

Prendergast, C., "The provision of incentives in firms", *Journal of Economic Literature*, vol. XXXVII, March 1999.

Stewart, M. B., Swaffield, J. K. (1998) "Low Pay Dynamics and Transition Probabilities" in "Low-pay and Earnings mobility in Europe" Asplund, Sloane, Theodossiou (eds.), Elgar publisher, 1998 London